Arch. Soc. Amer. Oftal. Optom. (1976)-11-89

CORNEAL TRANSPLANTATION IN HERPETIC KERATITIS

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The uncertain prognosis for corneal transplantation in herpetic eyes, well known to corneal surgeons, is hardly surprising for the very nature of herpetic disease is of recurrent inflammation of unpredictable periodicity and severity; furthermore, they available therapeutic agents, both anti-viral and anti-inflammatory, are of only limited efficacy.

A recent retrospective study on corneal grafts in herpetic eyes has led to some observations which have practical clinical application (Rice & Jones, 1973).

1. Penetrating corneal grafts

a) Incidence of allograft reaction:

In a series of 57 penetrating grafts, it was found that 58% developed oedema of the graft and uveitis; this complication appeared within the first 6 post-operative months in most cases, although it was seen as late as 6 years after surgery. It was somewhat commoner in those eyes which had clinically active disease at the time of surgery (64%) as compared to those which were clinically inactive (54%). The majority of cases were characterized by the appearance on the graft of a typical endothelial rejection line as described by Khodadoust and Silverstein (1969); this is pathognemonic evidence of an allograft reaction and unquestionably explains the oedema of the graft in such cases. In a minority of cases the graft became uniformally oedematous, without the appearance of an endothelial rejection line: although it is not possible to be certain of the mechanism in these cases, it would seem likely that they are also a manifestation of the allograft reaction, but mediated across the anterior chamber

rather than via the corneal blood vessels. The prompt recognition of the allograft reaction and the immediate institution of intensive topical cortico-steroid therapy resulted in half the cases responding and achieving clear grafts.

The cause of this very high incidence of allograft reaction in herpetic eyes is still speculative, but it does explain the uncertain and variable results of penetrating grafts in herpetic eyes. The lesson to the clinician is clear: these cases require the most careful, frequent and prolonged supervision following penetrating keratoplasty and awareness by the surgeon of the high incidence of graft reactions in these cases can lead to its early recognition and treatment and the salvaging of half the grafts.

It is noteworthy that just under 80% of the 50 eyes in this study achieved clear, penetrating grafts, although 10% required more than one graft.

b) **Recurrence of herpetic epithelial keratitis:**

Recurrence of active herpetic epithelial disease in the form of dentritic or amoeboid ulcers occurred in 9% of the penetrating grafts in this series. In all cases the lesions healed in response to topical anti-viral therapy (I.D.U.) and in no case did such lesions prejudice the outcome of the graft. This recurrence rate, which appears to be lower than the natural rate, is surprising, particularly as all these eyes received prolonged and often intensive cortico-steroid for at least 9 months post-operatively. It has led us to the conclusion that routine prophylactic anti-viral therapy is not indicated in the post-operative management of herpetic eyes following penetrating keratoplasty: indeed, I.D.U. is undoubtedly toxic to the corneal epithelium and we have seen cases in which graft failure appears to have been directly related to I.D.U. toxicity.

c) **The rôle for therapeutic penetrating keratoplasty:**

In 22 eyes penetrating keratoplasty was performed when the herpetic kerato-uveitis was active. In most cases the disease was recurrent and the inflammation had been present for many months without resolution on medical therapy; in 2 eyes the cornea had perforated. Sixty-eight percent of these grafts were clear and 2 of the failures subsequently achieved a clear re-graft, so that 77% of these eyes ultimately achieved clear grafts. These results are almost identical with those obtained in eyes which were

clinically quiet at the time of surgery, i.e. 68% of first grafts were clear and 79% of eyes ultimately achieved clear grafts. These encouraging results of penetrating grafts in eyes with active herpetic disease have led us to conclude that therapeutic penetrating keratoplasty can have a valuable place in the treatment of some severely infected eyes.

2. Lamellar keratoplasty

a) **Recurrence of stromal keratitis:**

Of 17 cases in which lamellar keratoplasty was performed 11 (65%) developed recurrence of stromal inflamation. This usually appeared to start in the host cornea deep to the lamellar graft and showed a strong tendency to spread and involve the graft; a severe, necrotising keratitis developed in some cases. This high rate of recurrent stromal disease has led us to conclude that lamellar keratoplasty has little, if any, place in the treatment of herpetic keratitis.

It is noteworthy that out of 18 eyes which had received preparatory lamellar grafts, only 8 (44%) subsequently achieved clear penetrating grafts. These figures do not support the concept of preparatory lamellar keratoplasty prior to penetrating keratoplasty in herpetic eyes.

b) **Recurrence of epithelial keratitis:**

Recurrence of epithelial disease occurred in 35% of cases following lamellar keratoplasty, a significantly higher figure than that for penetrating keratoplasty. There is no obvious explanation for this difference.

REFERENCES

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SUMMARY

The prognosis for corneal grafts practiced in herpetic eyes is uncertain due to the nature of the affection and to the limited efficiency of the drugs.

In a retrospective study of corneal grafts in herpetic eyes, the following conclusions were reached:

1. **With penetrating keratoplasties**

a) Total rejection of the graft. In a series of 57 penetrating keratoplasties it was found that 58% of the cases developed edema of the graft and uveitis. Most of the cases presented a line of endothelial rejection and total edema in the graft, but early diagnosis and intensive treatment with corticoids improved the prognosis.

b) Relapse of herpetic keratitis. In 9% of grafts there is a relapse of herpetic keratitis. In all of the cases there was a healing response after treatment with anivirals (IDU), with no sequels. However, IDU must not be used as a prophylactic since its toxicity leads to opacity of the graft.

c) The role of therapeutic penetrating keratoplasty. In 22 eyes in which penetrating keratoplasties with active keratouveitis were practiced (where in most cases the affection was a relapse), it was found that 68% of the grafts were clear. This percentage was the same as in grafts performed in tranquile eyes.

2. **With lamellar keratoplasties**

a) Recurrence of stromal keratitis. From 17 cases in which a lamellar keratoplasty was performed, 65% developed a recurrence of stromal inflammation. The relapse begins in the host stroma and involves the graft. There have also appeared necrotising keratitis.

CONCLUSION: The operation must not be performed.

b) Relapse of epithelial keratitis. It occurs in 35% of cases of lamellar keratoplasty.

CONCLUSION: The operation must not be performed.

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